006770 E65280

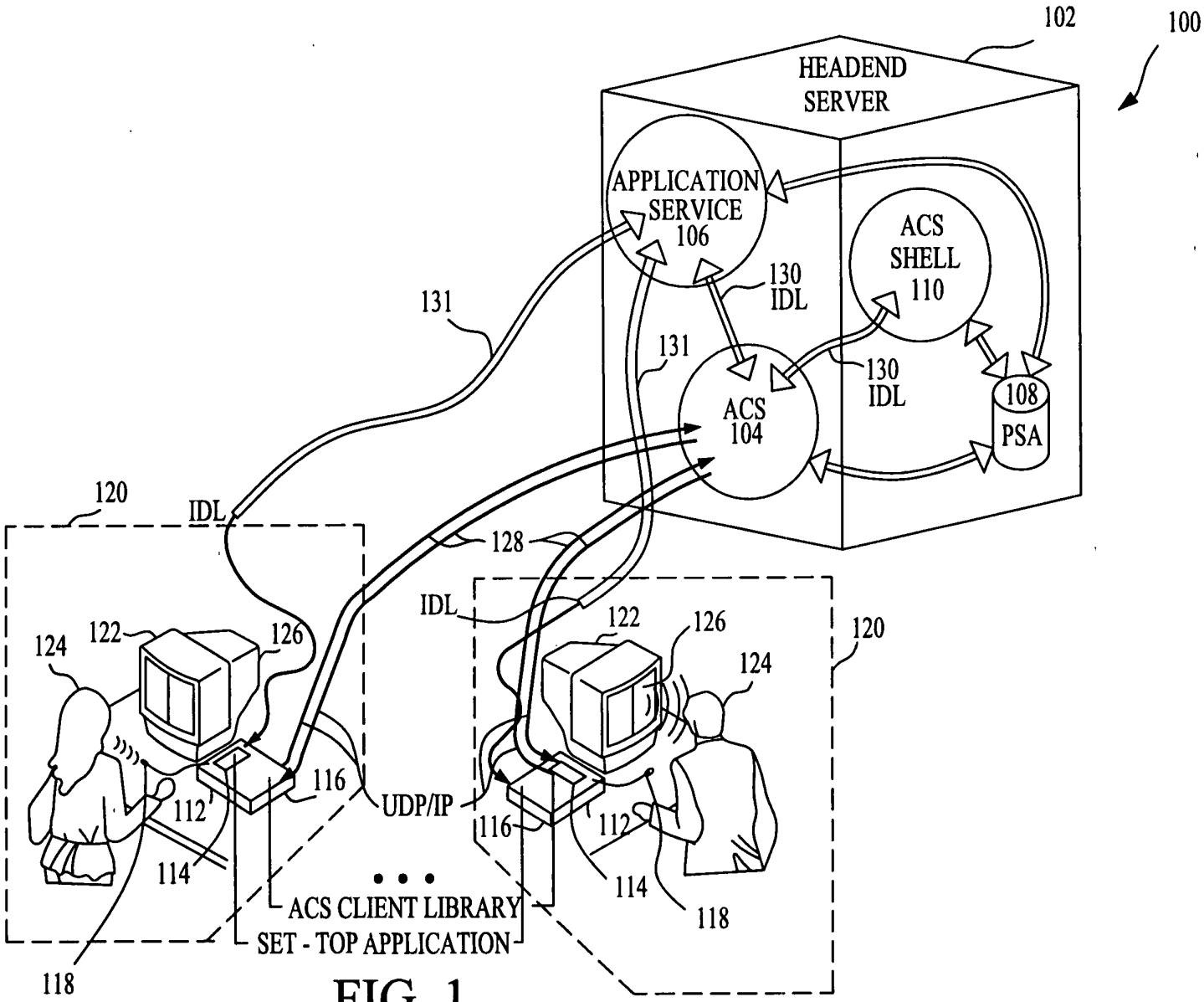

FIG. 1

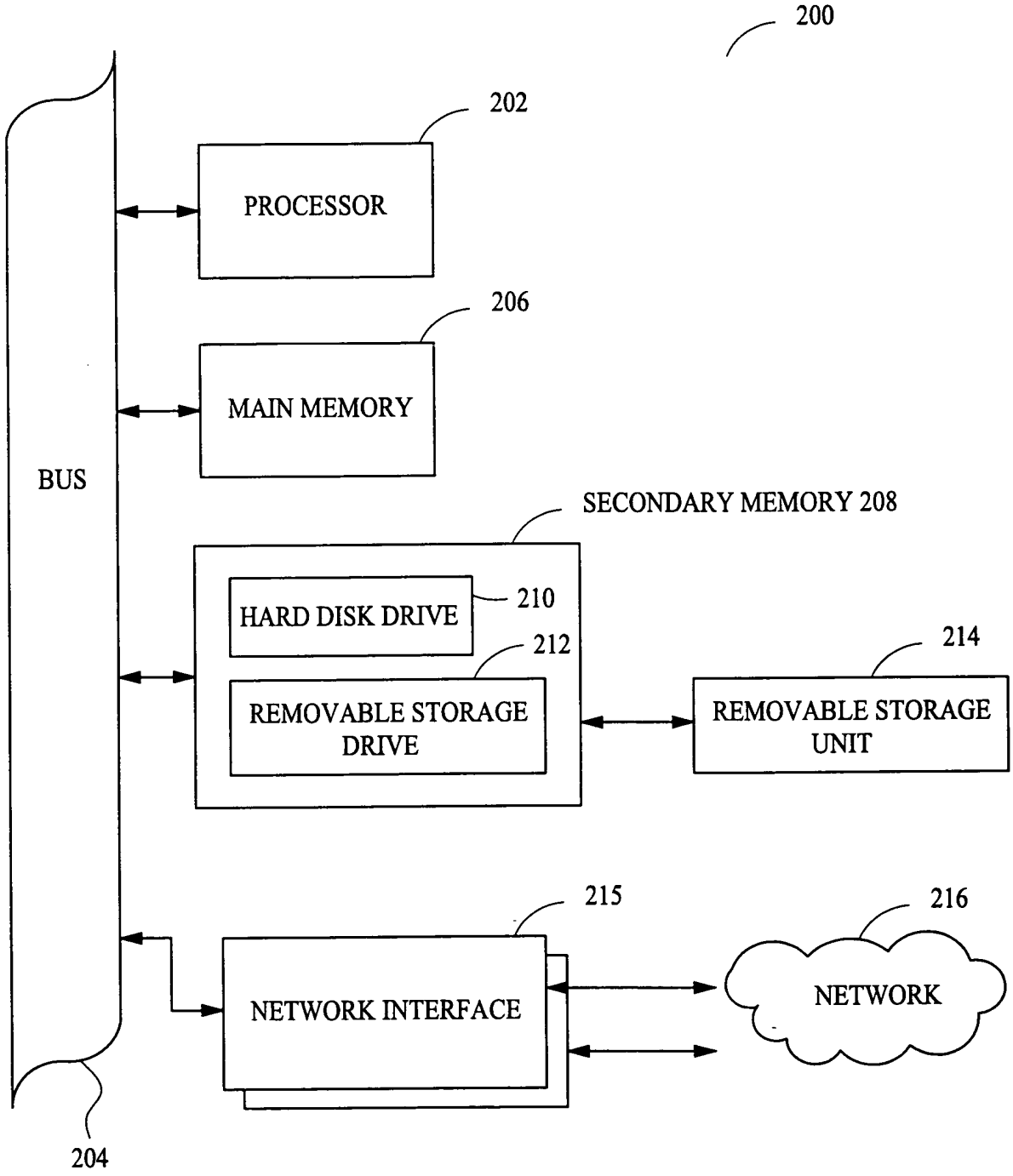
200
202
PROCESSOR
206
MAIN MEMORY
BUS
SECONDARY MEMORY 208
HARD DISK DRIVE
210
212
REMOVABLE STORAGE DRIVE
214
REMOVABLE STORAGE UNIT
215
216
NETWORK INTERFACE
NETWORK
204

FIG. 2

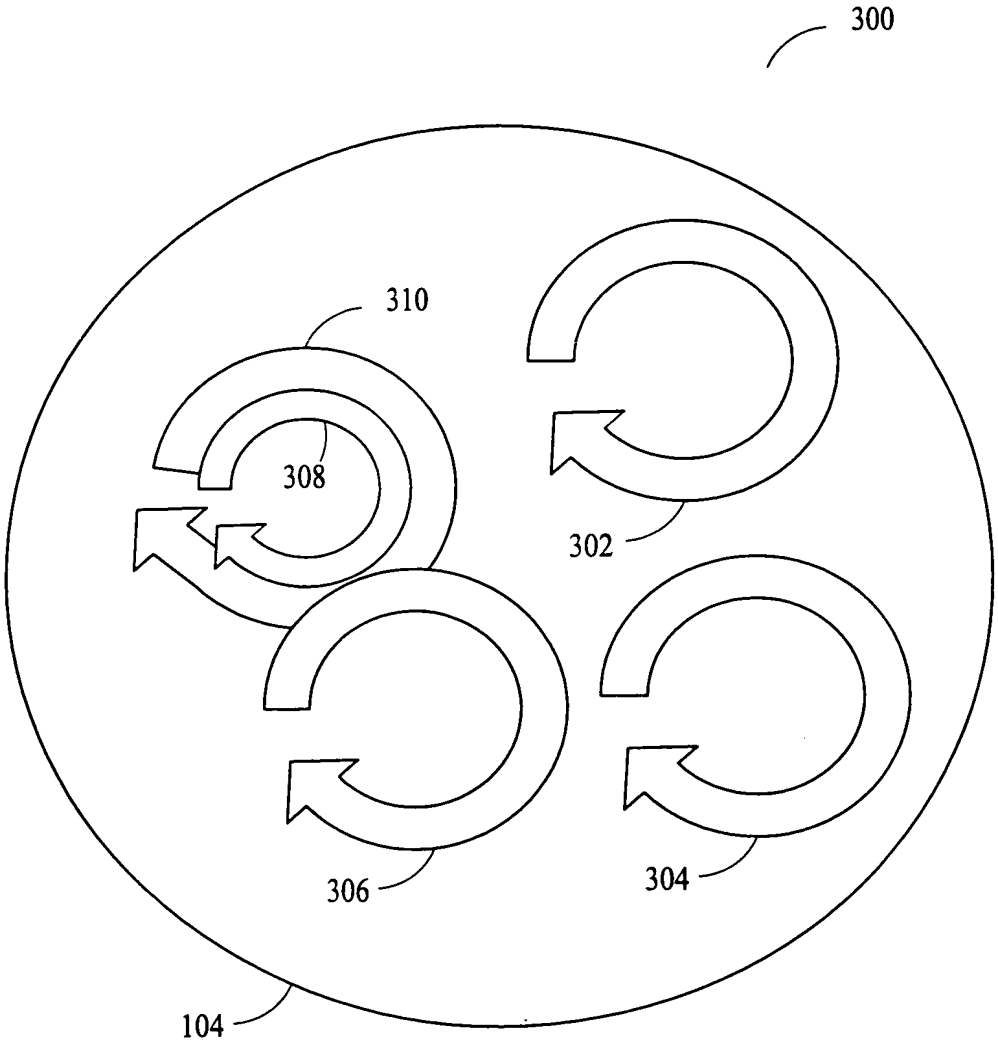

FIG. 3

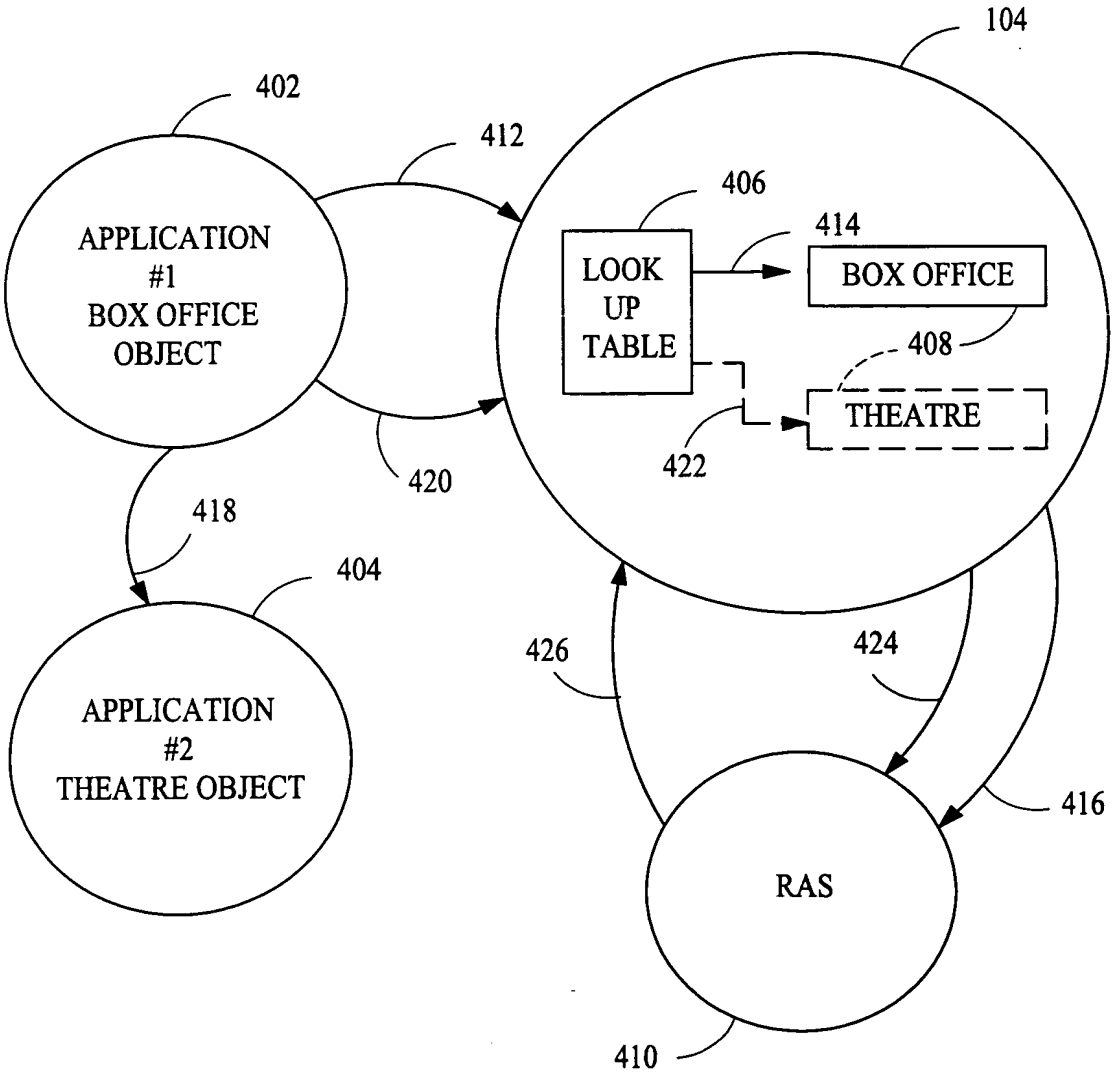
104
402
412
406
414
APPLICATION
#1
BOX OFFICE
OBJECT
LOOK
UP
TABLE
BOX OFFICE
408
THEATRE
422
420
418
404
APPLICATION
#2
THEATRE OBJECT
426
424
416
RAS
410

FIG. 4

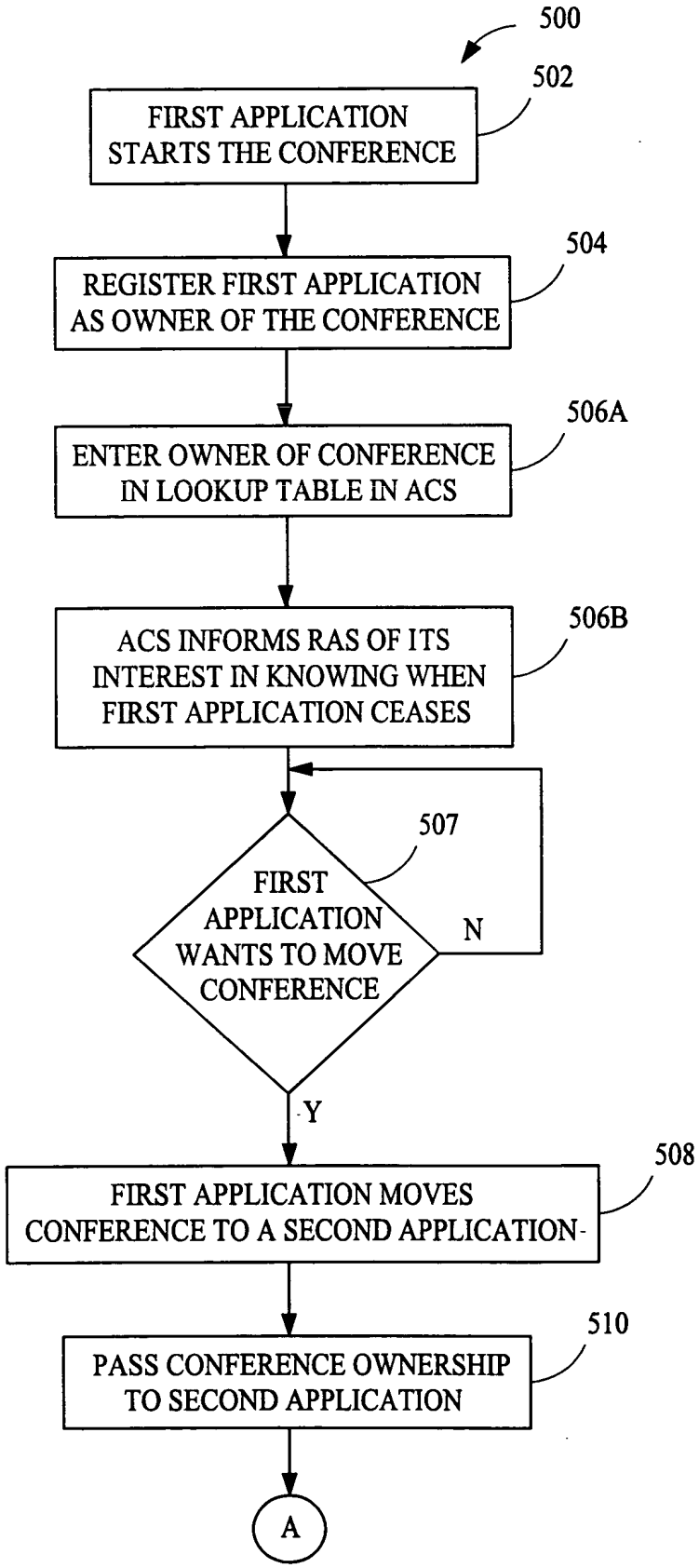
500
502
FIRST APPLICATION STARTS THE CONFERENCE
504
REGISTER FIRST APPLICATION AS OWNER OF THE CONFERENCE
506A
ENTER OWNER OF CONFERENCE IN LOOKUP TABLE IN ACS
506B
ACS INFORMS RAS OF ITS INTEREST IN KNOWING WHEN FIRST APPLICATION CEASES
507
FIRST APPLICATION WANTS TO MOVE CONFERENCE
N
Y
508
FIRST APPLICATION MOVES CONFERENCE TO A SECOND APPLICATION
510
PASS CONFERENCE OWNERSHIP TO SECOND APPLICATION
A

FIG. 5A

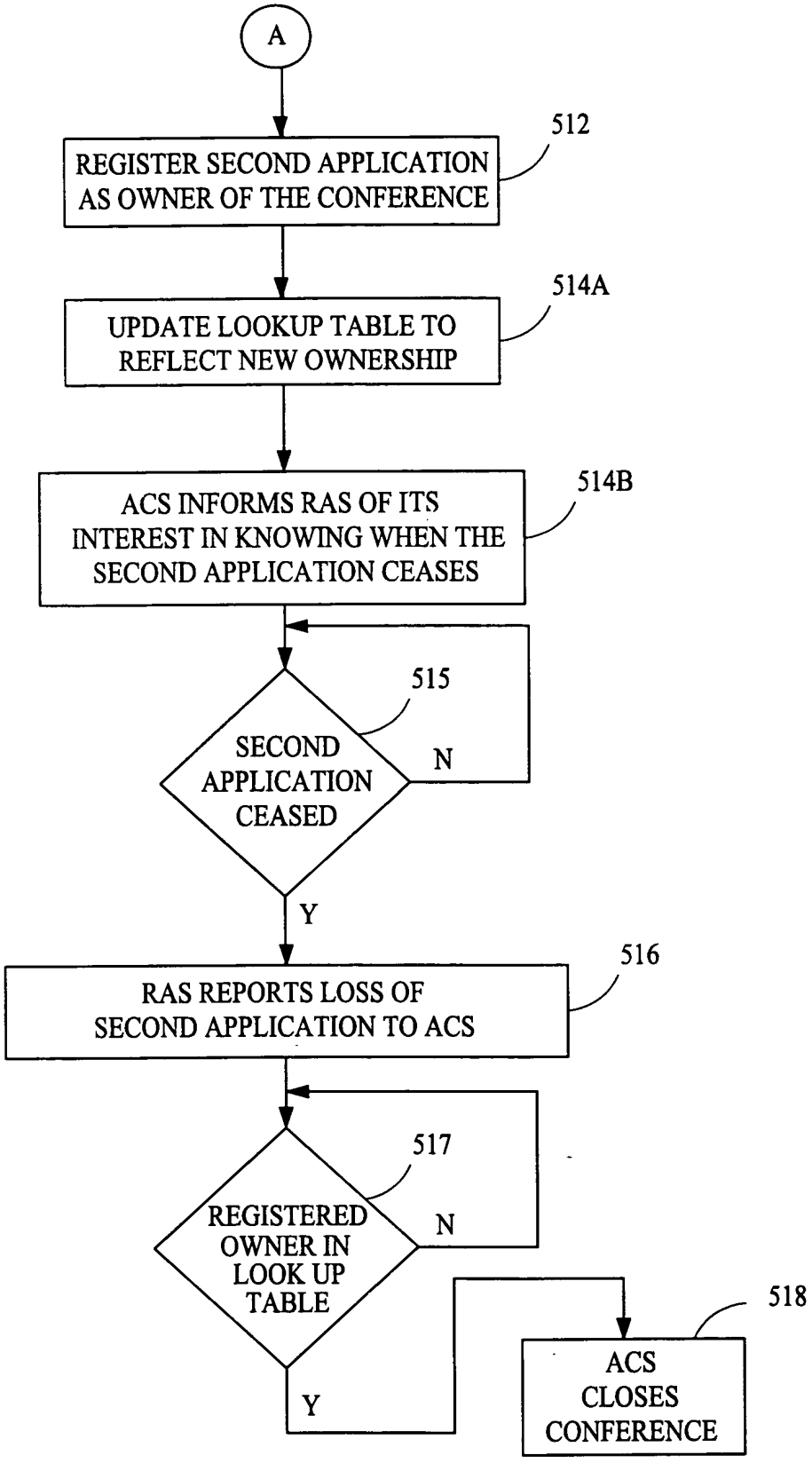
A
REGISTER SECOND APPLICATION AS OWNER OF THE CONFERENCE
512
UPDATE LOOKUP TABLE TO REFLECT NEW OWNERSHIP
514A
ACS INFORMS RAS OF ITS INTEREST IN KNOWING WHEN THE SECOND APPLICATION CEASES
514B
SECOND APPLICATION CEASED
515
N
Y
RAS REPORTS LOSS OF SECOND APPLICATION TO ACS
516
REGISTERED OWNER IN LOOK UP TABLE
517
N
Y
ACS CLOSES CONFERENCE
518

FIG. 5B

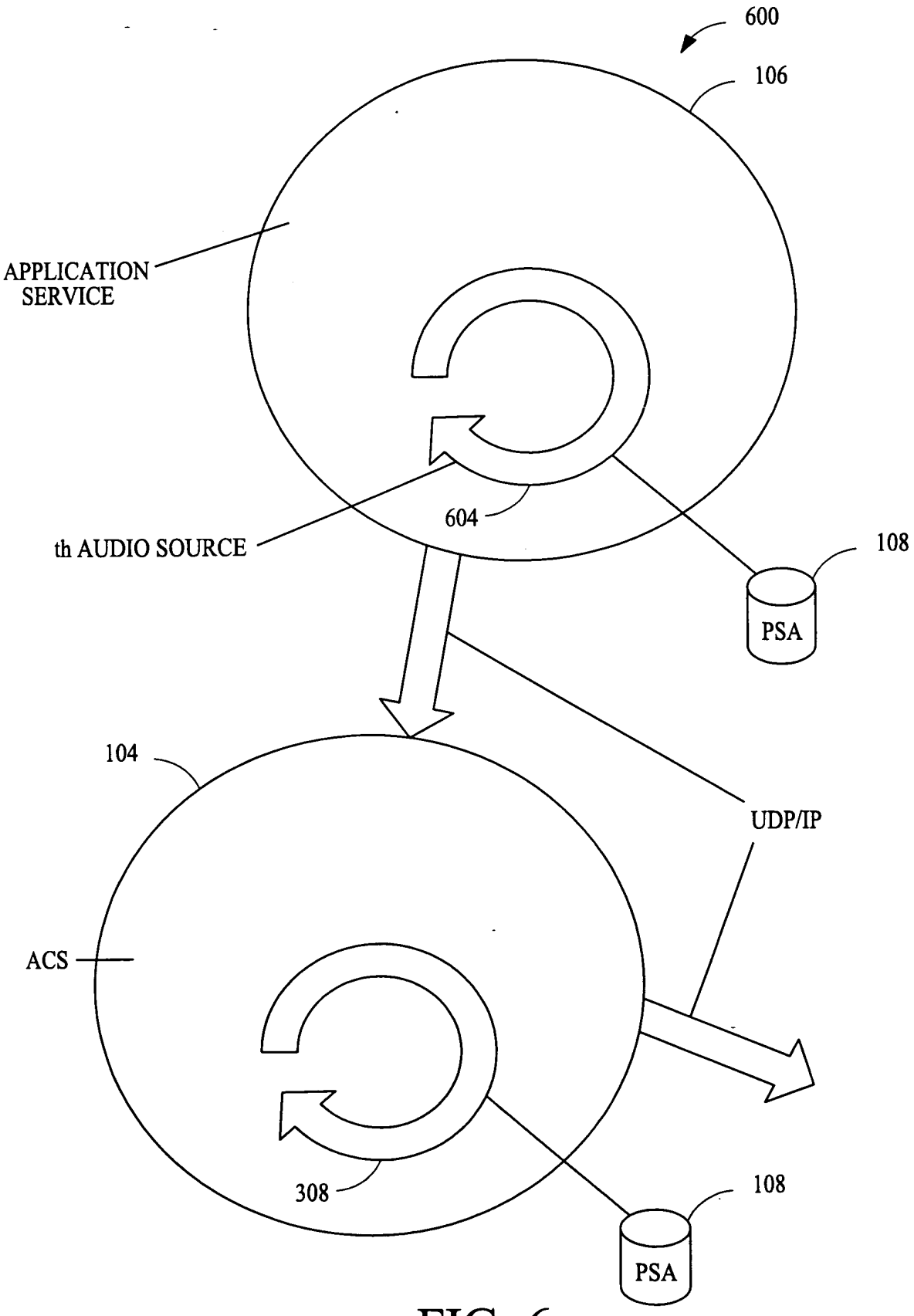
600
106
APPLICATION SERVICE
604
th AUDIO SOURCE
108
PSA
104
UDP/IP
ACS
308
108
PSA

FIG. 6

006TT0 E65Z8h60

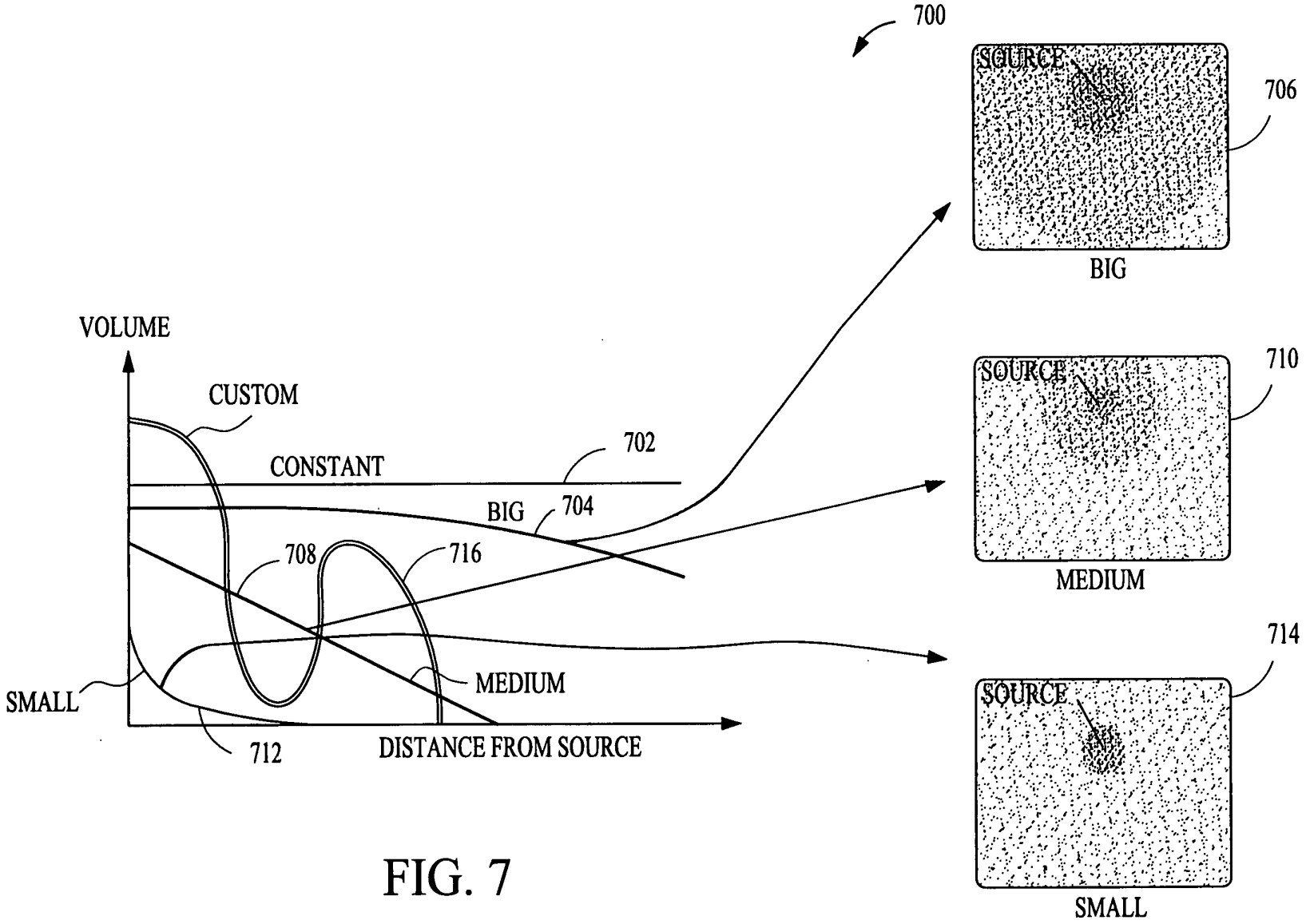

FIG. 7

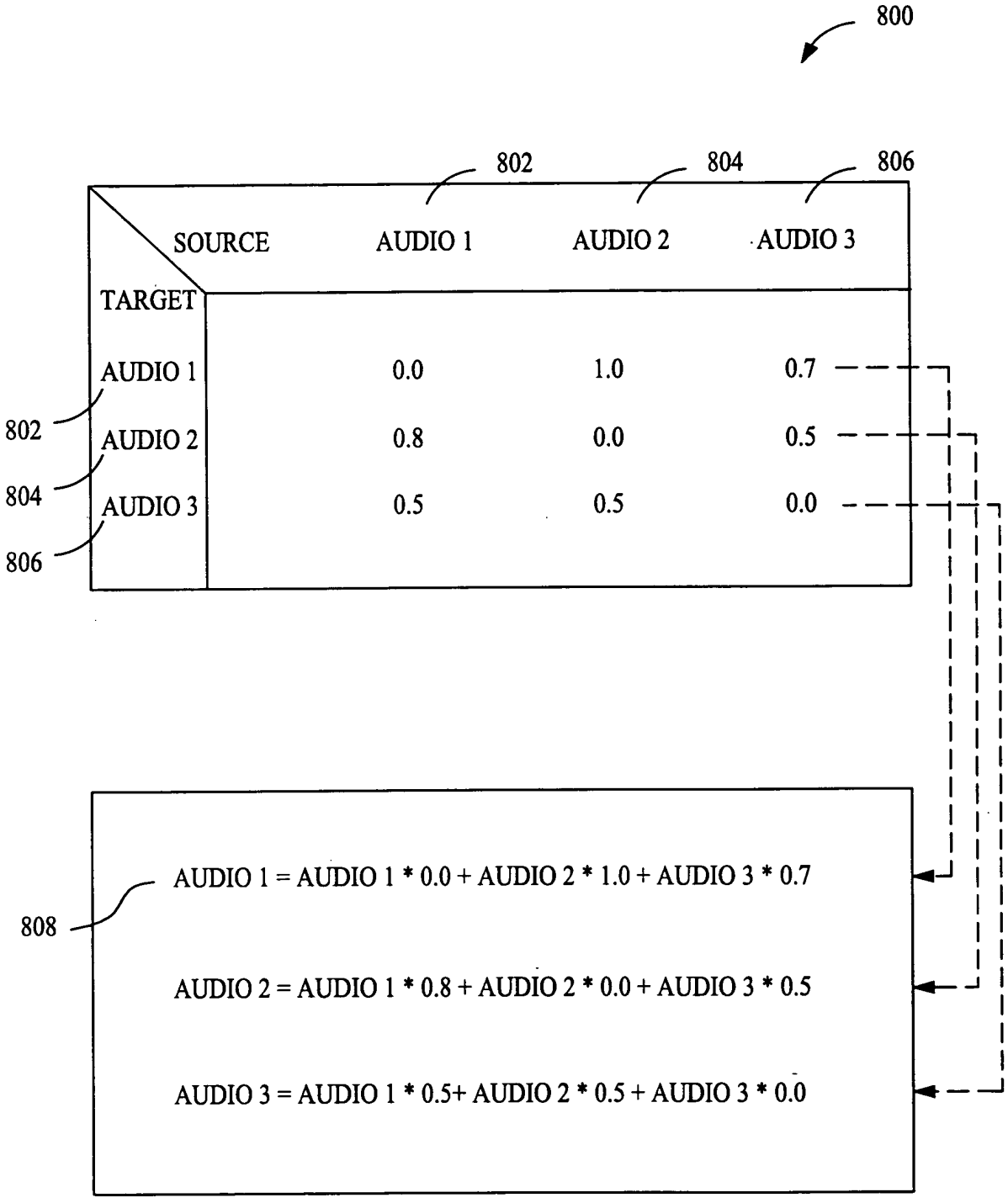
800
802
804
806
SOURCE
AUDIO 1
AUDIO 2
AUDIO 3
TARGET
AUDIO 1
AUDIO 2
AUDIO 3
0.0
1.0
0.7
0.8
0.0
0.5
0.5
0.5
0.0
802
804
806
808
AUDIO 1 = AUDIO 1 * 0.0 + AUDIO 2 * 1.0 + AUDIO 3 * 0.7
AUDIO 2 = AUDIO 1 * 0.8 + AUDIO 2 * 0.0 + AUDIO 3 * 0.5
AUDIO 3 = AUDIO 1 * 0.5+ AUDIO 2 * 0.5 + AUDIO 3 * 0.0

FIG. 8

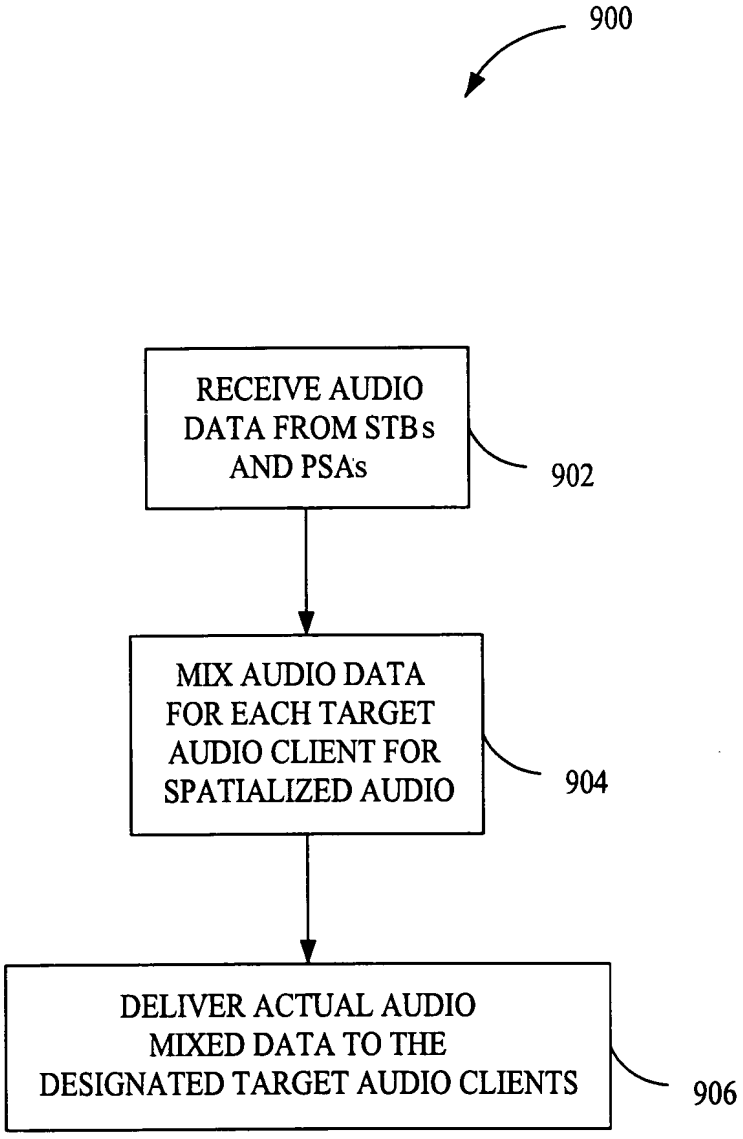
900
RECEIVE AUDIO DATA FROM STBs AND PSAs
902
MIX AUDIO DATA FOR EACH TARGET AUDIO CLIENT FOR SPATIALIZED AUDIO
904
DELIVER ACTUAL AUDIO MIXED DATA TO THE DESIGNATED TARGET AUDIO CLIENTS
906

FIG. 9A

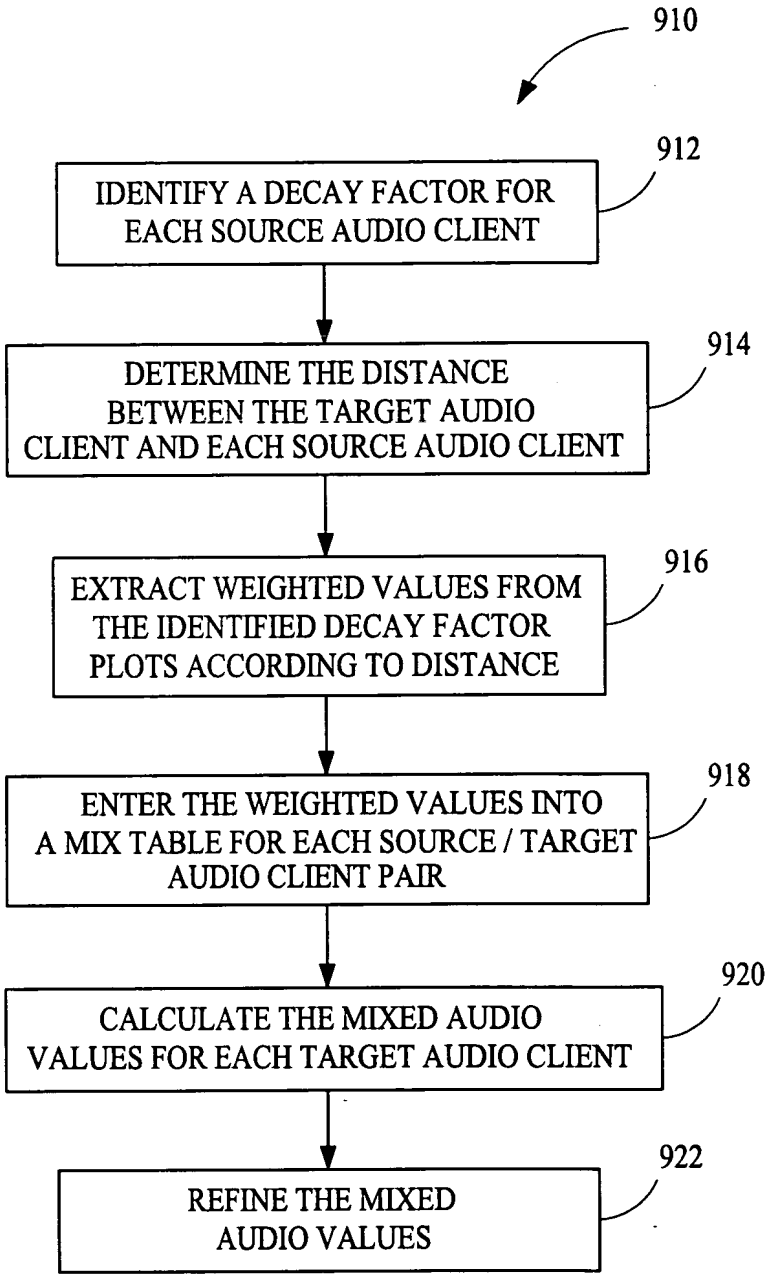
910
912
IDENTIFY A DECAY FACTOR FOR EACH SOURCE AUDIO CLIENT
914
DETERMINE THE DISTANCE BETWEEN THE TARGET AUDIO CLIENT AND EACH SOURCE AUDIO CLIENT
916
EXTRACT WEIGHTED VALUES FROM THE IDENTIFIED DECAY FACTOR PLOTS ACCORDING TO DISTANCE
918
ENTER THE WEIGHTED VALUES INTO A MIX TABLE FOR EACH SOURCE / TARGET AUDIO CLIENT PAIR
920
CALCULATE THE MIXED AUDIO VALUES FOR EACH TARGET AUDIO CLIENT
922
REFINE THE MIXED AUDIO VALUES

FIG. 9B

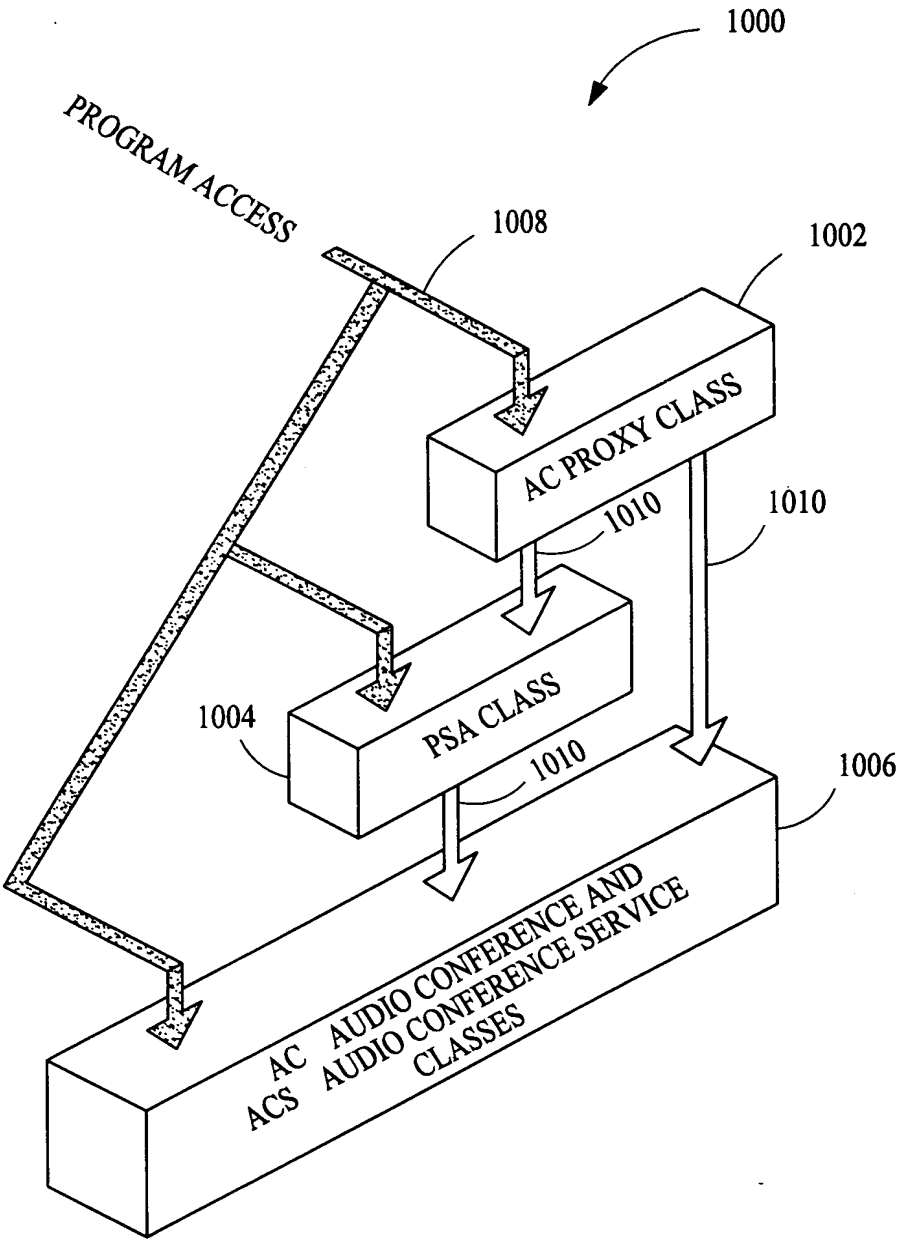
1000
PROGRAM ACCESS
1008
1002
AC PROXY CLASS
1010
1010
1004
PSA CLASS
1010
1006
AC AUDIO CONFERENCE AND
ACS AUDIO CONFERENCE SERVICE
CLASSES

FIG. 10

ACPROXY CLASS METHODS ~1100

	METHOD	DESCRIPTION
1102	ACPROXY()	OPENS THE AUDIO CONFERENCE.
1104	~ACPROXY()	CLEANS UP AND CLOSES THE AUDIO CONFERENCE.
1106	ADDCLIENT()	ADDS SET TOP AUDIO CLIENT TO THE AUDIO CONFERENCE.
1108	ADDPSA()	ADDS A PSA AUDIO CLIENT TO THE CONFERENCE.
1110	AUDIOS()	LISTS AUDIO CLIENT IDS IN THE CONFERENCE
1112	DEMUTEAUDIO()	ENABLES AUDIO OF THE PSA.
1114	GETAUDIOLOCATION()	LOCATES X, Y COORDINATES OF AN AUDIO CLIENT.
1116	GETCONFINFO()	RETRIEVES AUDIO CONFERENCE INFORMATION.
1118	MOVEAUDIO()	MOVES AUDIO SOURCE TO A SPECIFIED LOCATION.
1120	MUTEAUDIO()	DISABLES AUDIO OF THE PSA.
1122	REGISTEROWNER()	TRANSFER OWNER OF THE AUDIO CONFERENCE USING THE OBJECT REFERENCE.
1124	REGISTEROWNERBYNAME()	TRANSFER OWNER OF THE AUDIO CONFERENCE USING THE NAME OF THE APPLICATION AS EXPORTED BY THE NAME SPACE.
1126	REMOVEAUDIO()	REMOVES THE AUDIO CLIENT.
1128	UNREGISTEROWNER()	REMOVES PREVIOUS OWNERSHIP OF THE AUDIO CONFERENCE.

FIG. 11

POINTSOURCEAUDIO CLASS METHODS ~ 1200

	METHOD	DESCRIPTION
1202	POINTSOURCEAUDIO()	CLASS CONSTRUCTOR. INSTANTIATES A PSA OBJECT.
1204	~POINTSOURCEAUDIO()	CLEANS UP RESOURCES, CLOSES THE DEVICE USED BY A PSA.
1206	PLAY()	PLAYS THE AUDIO SOURCE.
1208	STOP()	STOPS PLAYING THE AUDIO SOURCE.
1210	PAUSE()	PAUSES THE PLAYING OF THE AUDIO SOURCE.
1212	RESUME()	RESUMES PLAYING THE AUDIO SOURCE.

FIG. 12

THE ACS :: AUDIO CONFERENCE SERVICE METHODS ~ 1300

METHOD	DISCRIPTION
1302 ~ OPENCONFERENCE()---	CREATES AN AUDIO CONFERENCE.
1304 ~ CLOSECONFERENCE()---	CLOSES AN AUDIO CONFERENCE.
1306 ~ GETCONFERENCEBYTICKET()---	FINDS THE CONFERENCE NAME GIVEN THE TICKET NUMBER.
1308 ~ LISTCONFERENCE()---	RETURNS A SEQUENCE OF CONFERENCE OBJECTS.
1310 ~ HCTAUDIOSTAT()---	FINDS INFORMATION ABOUT A SET - TOP AUDIO CLIENT.

FIG. 13

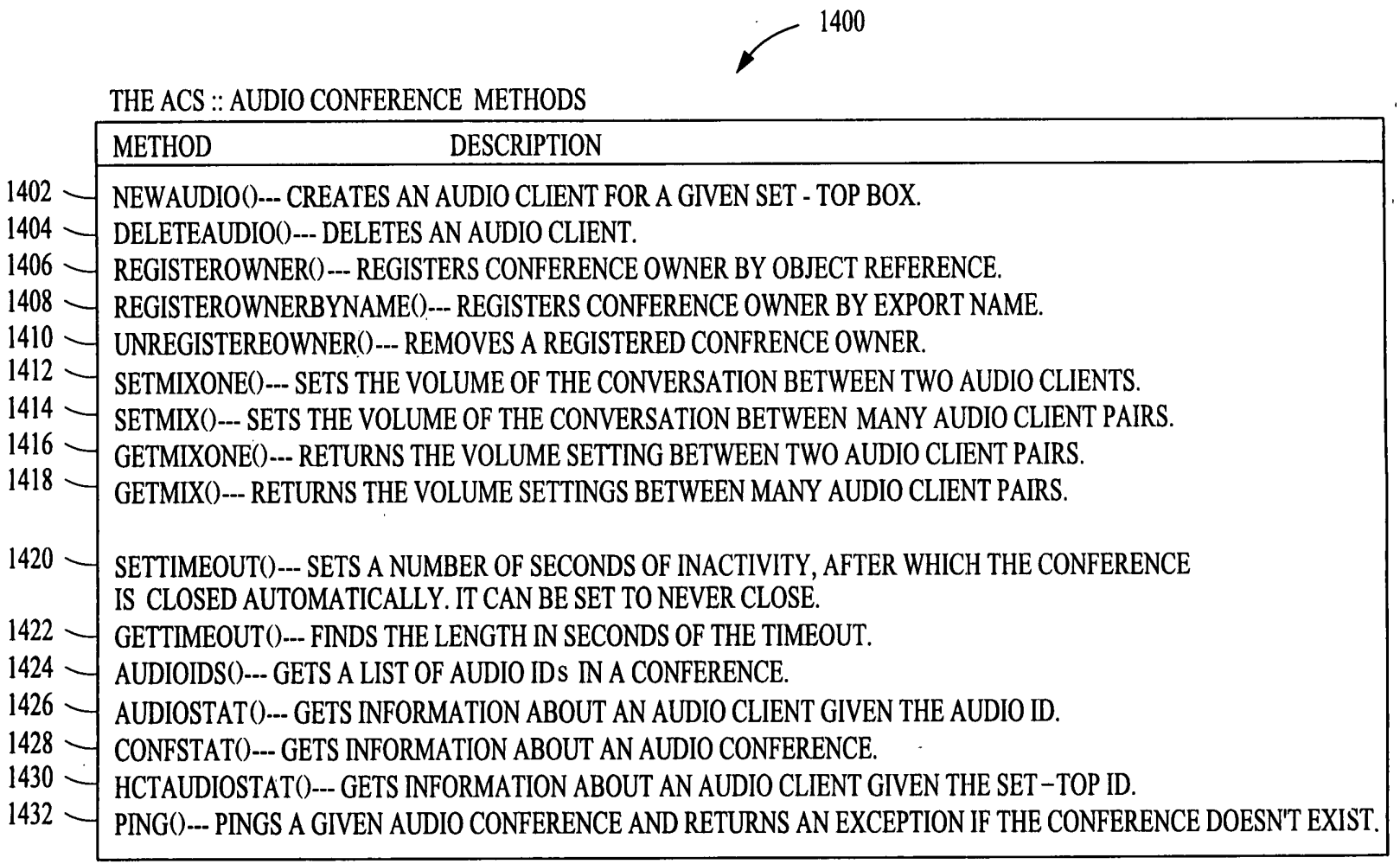
1400
THE ACS :: AUDIO CONFERENCE METHODS
METHOD
DESCRIPTION
1402
NEWAUDIO()--- CREATES AN AUDIO CLIENT FOR A GIVEN SET - TOP BOX.
1404
DELETEAUDIO()--- DELETES AN AUDIO CLIENT.
1406
REGISTEROWNER()--- REGISTERS CONFERENCE OWNER BY OBJECT REFERENCE.
1408
REGISTEROWNERBYNAME()--- REGISTERS CONFERENCE OWNER BY EXPORT NAME.
1410
UNREGISTEREOWNER()--- REMOVES A REGISTERED CONFRENCE OWNER.
1412
SETMIXONE()--- SETS THE VOLUME OF THE CONVERSATION BETWEEN TWO AUDIO CLIENTS.
1414
SETMIX()--- SETS THE VOLUME OF THE CONVERSATION BETWEEN MANY AUDIO CLIENT PAIRS.
1416
GETMIXONE()--- RETURNS THE VOLUME SETTING BETWEEN TWO AUDIO CLIENT PAIRS.
1418
GETMIX()--- RETURNS THE VOLUME SETTINGS BETWEEN MANY AUDIO CLIENT PAIRS.
1420
SETTIMEOUT()--- SETS A NUMBER OF SECONDS OF INACTIVITY, AFTER WHICH THE CONFERENCE IS CLOSED AUTOMATICALLY. IT CAN BE SET TO NEVER CLOSE.
1422
GETTIMEOUT()--- FINDS THE LENGTH IN SECONDS OF THE TIMEOUT.
1424
AUDIOIDS()--- GETS A LIST OF AUDIO IDs IN A CONFERENCE.
1426
AUDIOSTAT()--- GETS INFORMATION ABOUT AN AUDIO CLIENT GIVEN THE AUDIO ID.
1428
CONFSTAT()--- GETS INFORMATION ABOUT AN AUDIO CONFERENCE.
1430
HCTAUDIOSTAT()--- GETS INFORMATION ABOUT AN AUDIO CLIENT GIVEN THE SET-TOP ID.
1432
PING()--- PINGS A GIVEN AUDIO CONFERENCE AND RETURNS AN EXCEPTION IF THE CONFERENCE DOESN'T EXIST.

FIG. 14

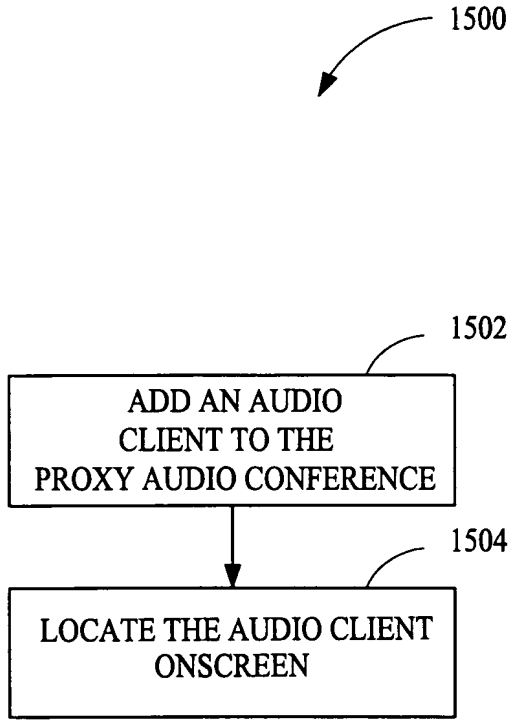
1500
1502
ADD AN AUDIO CLIENT TO THE PROXY AUDIO CONFERENCE
1504
LOCATE THE AUDIO CLIENT ONSCREEN

FIG. 15

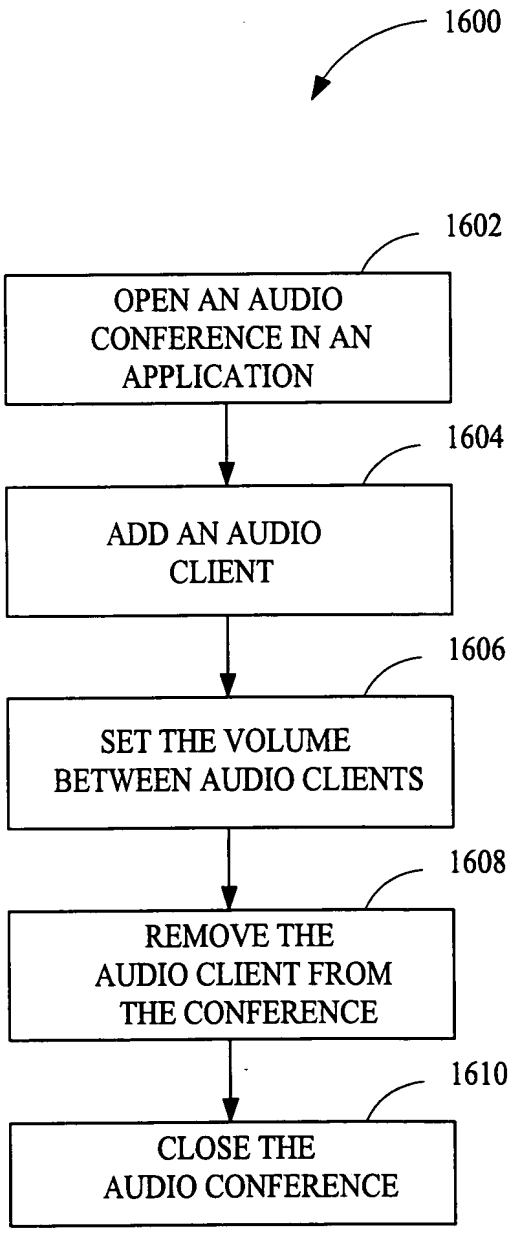
1600
1602
OPEN AN AUDIO CONFERENCE IN AN APPLICATION
1604
ADD AN AUDIO CLIENT
1606
SET THE VOLUME BETWEEN AUDIO CLIENTS
1608
REMOVE THE AUDIO CLIENT FROM THE CONFERENCE
1610
CLOSE THE AUDIO CONFERENCE

FIG. 16